

## ABSTRACT

A wave transmission medium includes an input port 3-1 and an output port 3-2. A field distribution 1 and  
5 a field distribution 2 are obtained by numerical calculations. The field distribution 1 is a field distribution of the propagation light (forward propagation light) launched into the input port 3-1. The field distribution 2 is a field distribution of the  
10 phase conjugate light (reverse propagation light) resulting from reversely transmitting from the output port side an output field that is expected to be output from the output port 3-2 when an optical signal is launched into the input port 3-1,. According to the  
15 field distributions 1 and 2, a spatial refractive index distribution is calculated such that the phase difference between the propagation light and reverse propagation light is eliminated at individual points  $(x, z)$  in the medium.